Name: _____   Date: _____

Intervals, Transformations, and Slope Solution (version 46)

1. The function f is graphed below.
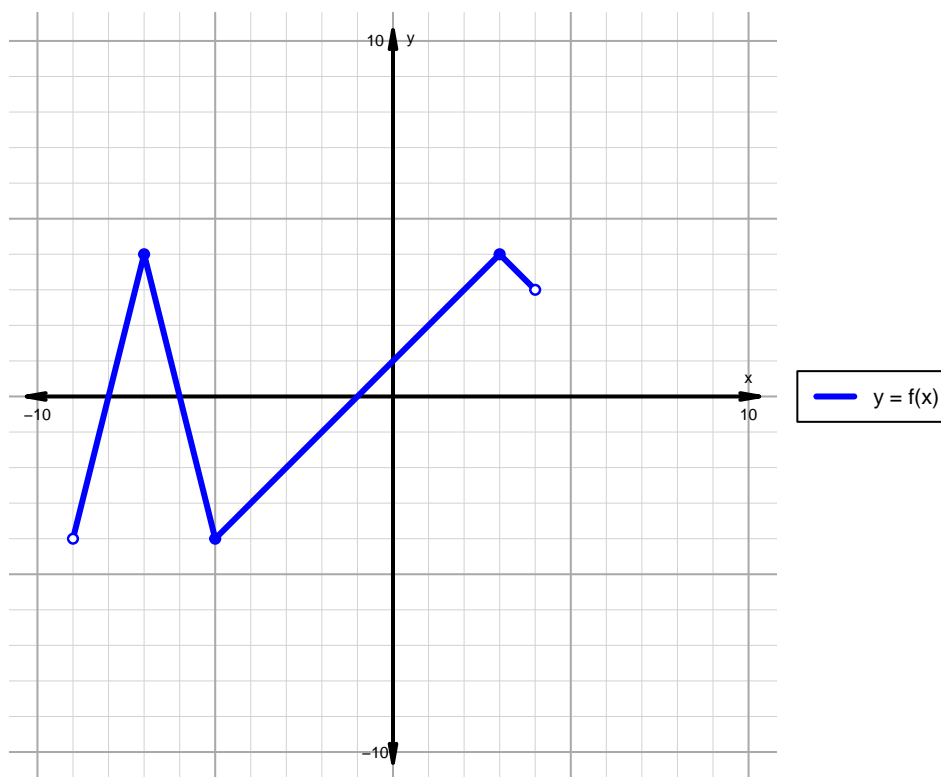
Indicate the following intervals using interval notation. Remember, you can use $\cup$ between two intervals to indicate the union. Except for range, all intervals will indicate x values; this is standard.

Feature	Where
Positive	$(-8, -6) \cup (-1, 4)$
Negative	$(-9, -8) \cup (-6, -1)$
Increasing	$(-9, -7) \cup (-5, 3)$
Decreasing	$(-7, -5) \cup (3, 4)$
Domain	$(-9, 4)$
Range	$(-4, 4)$

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2. In the four graphs below, $y = f(x)$ is graphed as a dotted line. With a solid line, please graph the transformations indicated by the equations below.

$y = f(x - 2)$

$y = f(2 \cdot x)$

$y = f(x) - 2$

$y = -2 \cdot f(x)$
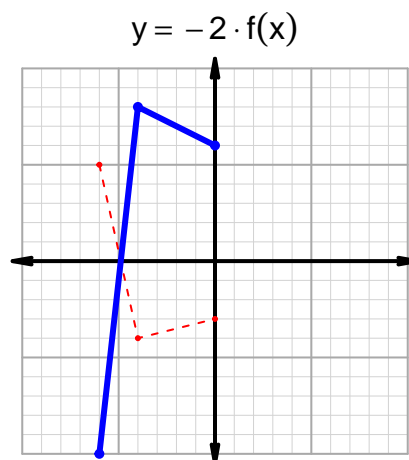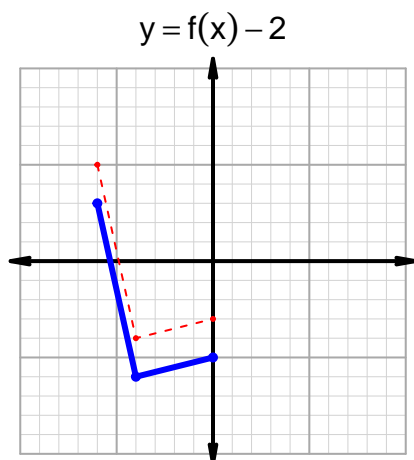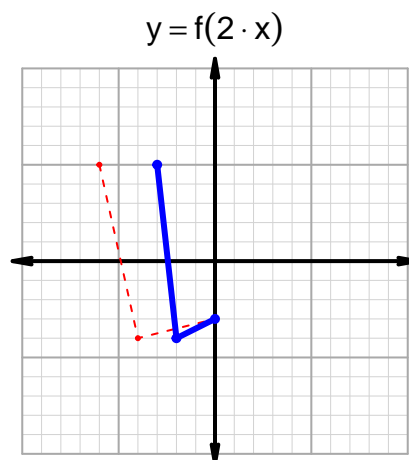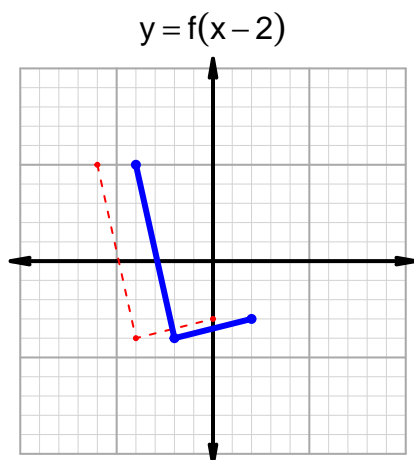
3. Let function g be defined by the table below. Use the formula $\frac{g(x_2)-g(x_1)}{x_2-x_1}$ to find the average rate of change between $x_1 = 25$ and $x_2 = 52$. Express your answer as a reduced fraction.

x	$g(x)$
25	66
52	90
66	52
90	25

$\frac{g(52)-g(25)}{52-25} = \frac{90-66}{52-25} = \frac{24}{27}$

The greatest common factor of 24 and 27 is 3. Divide numerator and denominator by the greatest common factor.

$$\text{AROC} = \frac{8}{9}$$